Claims

1 A diblock copolymer of formula A-B wherein
polymer block A represents a linear pharmaceutically acceptable hydrophilic polymer with a molecular weight < 1,000, and
polymer block B represents a polymer comprising at least two different monomers selected from glycolic acid, propiolactone, γ-butyrolactone, δ-valerolactone, γ-valerolactone, ε-caprolactone, trimethylene carbonate, p-dioxanone, tetramethylene carbonate, ε-lactone, 1,5-dioxepan-2-one characterized in that the diblock copolymer is liquid at a temperature below 50°C.

2 A diblock copolymer according to claim 1 wherein polymer block B represents a polymer comprising monomers selected from glycolic acid, propiolactone, γ-butyrolactone, δ-valerolactone, ε-caprolactone, trimethylene carbonate, p-dioxanone, tetramethylene carbonate, ε-lactone, 1,5-dioxepan-2-one or mixtures thereof.

3. A diblock copolymer according to claim 1 wherein polymer block B represents a polymer comprising monomers of trimethylene carbonate and monomers selected from glycolic acid, propiolactone, γ-butyrolactone, δ-valerolactone, γ-valerolactone, ε-caprolactone, p-dioxanone, tetramethylene carbonate, ε-lactone, 1,5-dioxepan-2-one or mixtures thereof.

4. A diblock copolymer according to claim 3 wherein polymer block B represents a polymer comprising monomers of trimethylene carbonate and monomers selected from glycolic acid, propiolactone, γ-butyrolactone, δ-valerolactone, ε-caprolactone, p-dioxanone, tetramethylene carbonate, ε-lactone, 1,5-dioxepan-2-one or mixtures thereof.

5. A diblock copolymer according to claim 1 wherein polymer block B represents a polymer comprising monomers selected from propiolactone, γ-butyrolactone, δ-valerolactone, γ-valerolactone, ε-caprolactone, trimethylene carbonate, p-dioxanone, tetramethylene carbonate, ε-lactone, 1,5-dioxepan-2-one.

6. A diblock copolymer according to claim 5 wherein polymer block B comprises two different monomers selected from propiolactone, γ-butyrolactone, δ-valerolactone, γ-valerolactone, ε-caprolactone, trimethylene carbonate,

p-dioxanone, tetramethylene carbonate, ε-lactone, 1,5-dioxepan-2-one.

7. A diblock copolymer according to claim 6 wherein polymer block B comprises monomers selected from ε-caprolactone and trimethylene carbonate.

8. A diblock copolymer according to any one of claims 1 to 7 wherein polymer block A represents poly(C_{1-20}alkylene oxide) or a derivative thereof.

9. A diblock copolymer according to claim 8 wherein the poly(C_{1-20}alkylene oxide) or the derivative thereof is poly(ethylene glycol) or a derivative thereof, in particular poly(ethylene glycol) monomethylether.

10. A diblock copolymer according to claim 9 wherein the poly(ethylene glycol) or a derivative thereof has a molecular weight ranging from > 350 to ≤ 750.

11. A diblock copolymer according to claim 10 wherein the poly(ethylene glycol) or the derivative thereof has a molecular weight of 750.

12. A diblock copolymer according to any one of claims 1 to 11 having a molecular weight ranging from 2,000 to 10,000.

13. A diblock copolymer according to claim 12 having a molecular weight ranging from 2,000 to 8,000.

14. A diblock copolymer according to claim 13 having a molecular weight ranging from 2,500 to 7,000.

15. A diblock copolymer according to any one of claims 1 to 14 being a liquid at room temperature or at 37°C.

16. A composition comprising an active ingredient and one or more diblock copolymers of formula A-B according to any one of claims 1 to 15 characterized in that the composition is liquid below 50°C.

17. A composition according to claim 16 wherein the composition is non-aqueous.

18. A pharmaceutical dosage form comprising a therapeutically effective amount of a

composition according to claim 16 or 17.

19. A pharmaceutical dosage form according to claim 18 characterized in that the dosage form is suitable for oral administration.

20. A pharmaceutical dosage form according to claim 18 characterized in that the dosage form is suitable for parenteral administration.

21. A pharmaceutical dosage form according to any one of claims 18 to 20 wherein the dosage form is an aqueous solution.

22. A process to prepare an aqueous solution comprising an active ingredient and one or more diblock copolymers of formula A-B according to any one of claims 1 to 15 characterized by mixing the active ingredient with the one or more liquid copolymers, i.e. at a temperature below 50°C, followed by addition of water while stirring.

23. A process to prepare an aqueous solution comprising an active ingredient and one or more diblock copolymers of formula A-B according to any one of claims 1 to 15 characterized by

a) mixing the one or more copolymers with water at a temperature below 50°C, followed by

b) the addition of the active ingredient to the aqueous polymeric solution obtained under a) while stirring.

24. Use of a composition according to claim 16 or 17 for the manufacture of a pharmaceutical dosage form for oral administration to a human or non-human animal in need of treatment.

25. Use of a composition according to claim 16 or 17 for the manufacture of a pharmaceutical dosage form for parenteral administration to a human or non-human animal in need of treatment.

26. A pharmaceutical package suitable for commercial sale comprising a container, a pharmaceutical dosage form according to any one of claims 18 to 21, and associated with said package written matter.